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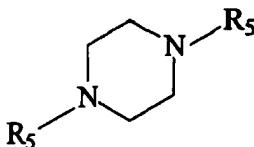
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A3 (54) Title: IMPROVED COMPOSITION AND METHOD FOR REMOVAL OF CARBONYL SULFIDE FROM ACID GAS CONTAINING SAME

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(III)

(57) Abstract: Novel solvent composition for selective removal of COS from a gas stream containing same, said composition comprising a) at least one polyalkylene glycol alkyl ether of the formula (I) or 1,3-dimethyl-3,4,5,6-tetrahydro-2(1H)-pyrimidinone or a mixture of N-formylmorpholine and N-acetylmorpholine Wherein R₁ is an alkyl group having from 1 to 6 carbon atoms; R₂ is hydrogen or an alkyl group having from 1 to 4 carbon atoms; Alk is an alkylene group, branched or unbranced, having from 2 to 4 carbon atoms, and n is from 1 to 10; and b) at least one alkanolamine compound of the formula (II) or at least one piperazine compound of formula (III) wherein R₃ is hydrogen, an alkyl group having from 1 to 6 carbon atoms, or the R₄OH group; R₄ is a branched or unbranched alkylene group having from 1 to 6 carbon atoms; R₅, independently in each occurrence, is hydrogen or an hydroxyalkyl group having from 1 to 4 carbon atoms; and R₆ is hydrogen, an alkyl group having from 1 to 6 carbon atoms or an hydroxyalkyl group having from 1 to 4 carbon atoms.

from 1 to 4 carbon atoms; Alk is an alkylene group, branched or unbranced, having from 2 to 4 carbon atoms, and n is from 1 to 10; and b) at least one alkanolamine compound of the formula (II) or at least one piperazine compound of formula (III) wherein R₃ is hydrogen, an alkyl group having from 1 to 6 carbon atoms, or the R₄OH group; R₄ is a branched or unbranched alkylene group having from 1 to 6 carbon atoms; R₅, independently in each occurrence, is hydrogen or an hydroxyalkyl group having from 1 to 4 carbon atoms; and R₆ is hydrogen, an alkyl group having from 1 to 6 carbon atoms or an hydroxyalkyl group having from 1 to 4 carbon atoms.

INTERNATIONAL SEARCH REPORT

national Application No

PCT/US2004/007453

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B01D53/14 B01D53/48

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 589 149 A (GARLAND PAUL ET AL) 31 December 1996 (1996-12-31) cited in the application claims; example; table 1	1-18
X	US 4 336 233 A (APPL MAX ET AL) 22 June 1982 (1982-06-22) column 3, lines 25-44; claims 1,3	1-18
X	DATABASE WPI Section Ch, Week 198312 Derwent Publications Ltd., London, GB; Class J01, AN 1983-28999K XP002298099 & SU 927 282 B (NATURAL GAS PROCESS) 15 May 1982 (1982-05-15) abstract	1-18
		-/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 101 39 453 A (BASF AG) 20 February 2003 (2003-02-20) column 3, paragraphs 15,16 -----	1-18
X	DE 39 22 904 A (CASSELLA AG) 17 January 1991 (1991-01-17) page 2, lines 43-52; claims 1-3 -----	1-9
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X	DE 38 28 513 A (MERCK PATENT GMBH) 1 March 1990 (1990-03-01) claims 1,2; table 2 -----	19
A	US 4 183 903 A (MELCHIOR, MICHAEL T ET AL) 15 January 1980 (1980-01-15) the whole document -----	19,20
A	US 4 545 965 A (GAZZI ET AL) 8 October 1985 (1985-10-08) claim 1 -----	21,22
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A	US 6 102 987 A (GROSS ET AL) 15 August 2000 (2000-08-15) cited in the application the whole document -----	21,22

INTERNATIONAL SEARCH REPORT

International application No.
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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-18

Solvent composition comprising
(a) at least one polyalkylene glycole alkyl ether, and
(b) at least one alkanolamine
or
at least one piperazine, and
process for selective removal of COS from a gas stream containing COS and CO₂ using the composition.

2. claims: 19,20

Solvent composition comprising
(a) 1,3,-dimethyl-3,4,5,6-tetrahydro-2(1H)-pyrimidinone and
(b) at least one alkanolamine
or
at least one piperazine, and
process for selective removal of COS from a gas stream containing COS and CO₂ using the composition.

3. claims: 21,22

Solvent composition comprising
(a) a mixture of N-formylmorpholine and N-acetylmorpholine and
(b) at least one alkanolamine
or
at least one piperazine, and
process for selective removal of COS from a gas stream containing COS and CO₂ using the composition.

INTERNATIONAL SEARCH REPORT

Information on patent family members

national Application No

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